

REMARKS/ARGUMENTS

Summary

In this Office Action, claims 1-27 stand rejected. Claims 1-4, 6, 8-10, 13, 14, 16, 17, 19, 24, 25, 27 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,077,149 issued to Ohkuni et al. (hereinafter “*Ohkuni*”). Claims 1-6, 8-22, and 24-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant’s Admitted Prior Art (hereinafter “*AAPA*”) in view of U.S. Patent 6,136,137 issued to Farnworth et al. (hereinafter “*Farnworth*”). Thus, claims 1-27 currently are pending.

In response, Applicant has amended independent claims 1 and 16, placing said claims, and claims 2-15 and 17-27 which depend therefrom, in condition for allowance. Applicant also has taken this opportunity to amend claims 1-27 to improve their readability and consistency.

Amendments to the Claims

As noted above, claims 1-27 have been amended. No new matter has been introduced.

Claim Rejections under 35 U.S.C. § 102(b) - *Ohkuni*

Claims 1-4, 6, 8-10, 13, 14, 16, 17, 19, 24, 25, 27 were rejected under 35 U.S.C. § 102(b) as being anticipated by *Ohkuni*. In response, Applicant has amended claims 1 and 16, placing said claims, and claims 2-4, 6, 8-10, 13, 14, 17, 19, 24, 25, 27 which depend therefrom, in condition for allowance.

Claim 1, as amended, is directed to a method of wafer grinding comprising, among other things, applying an adhesive gel material including particles to at least a portion of a first side of a semiconductor wafer having first and second sides, the particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to the first side of the semiconductor wafer. In addition, the method

comprises, among other things, allowing the adhesive gel material to release the semiconductor wafer, substantially free of the adhesive gel material, from a platform.

In contrast, *Ohkuni* teaches a method for surface-grinding a workpiece, but *Ohkuni's* method cannot be said to comprise applying an adhesive gel material including particles, the particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to a first side of the semiconductor wafer. Rather, *Ohkuni's* method discloses using a wax. Thus, *Ohkuni* cannot be said to disclose or suggest a method comprising applying an adhesive gel.

Even if it could be said that the claimed gel reads on *Ohkuni's* wax (which Applicant contends it does not), *Ohkuni* still fails to disclose or suggest applying an adhesive gel material including particles to a semiconductor wafer, the particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to the first side of the semiconductor wafer. Nor can *Ohkuni* be said to disclose or suggest a method comprising allowing the adhesive gel material to release the semiconductor wafer, substantially free of the adhesive gel material, from a platform. Rather, *Ohkuni's* wax, not having particles, is applied between a side of a workpiece and a base, the base chucked to a surface-grinding machine by means of a vacuum chuck means. *Ohkuni's* wax does not allow the semiconductor wafer to be released if a vacuum suction is applied to the semiconductor wafer. Rather *Ohkuni's* base is first released by discontinuing the vacuum and the workpiece is then removed with the wax remaining attached and subsequently removed by a removing agent. *Ohkuni*, 7:15-16. Therefore, *Ohkuni's* wax does not release the workpiece substantially free of the wax. Thus, *Ohkuni* cannot be said to teach each and every limitation of the invention as claimed in claim 1. Therefore, for at least that reason, claim 1 is allowable over *Ohkuni*.

Claim 16 recites similar limitations as claim 1 and therefore also is allowable over *Ohkuni*. Claims 2-4, 6, 8-10, 13, 14, 17, 19, 24, 25, 27 depend from one of independent claims 1 and 16, thereby incorporating the recitations of their respective independent

claim. Therefore, for at least the same reasons, claims 2-4, 6, 8-10, 13, 14, 17, 19, 24, 25, 27 also are allowable over *Ohkuni*.

Claim Rejections under 35 U.S.C. § 103(a) – AAPA/Farnworth

Claims 1-6, 8-22, and 24-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of *Farnworth*. In response, Applicant has amended claims 1 and 16, placing said claims, and claims 5-6, 8-15, 17-22, and 24-28 which depend therefrom, in condition for allowance.

In this Office Action, Examiner asserted that AAPA discloses wafer grinding and *Farnworth* discloses the use of an adhesive gel material, and further that the two references in combination render the claimed invention obvious.

As discussed above, claim 1, as amended, is directed to a method of wafer grinding comprising, among other things, applying an adhesive gel material including particles to at least a portion of a first side of a semiconductor wafer having first and second sides, the particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to the first side of the semiconductor wafer. In addition, the method comprises, among other things, allowing the adhesive gel material to release the semiconductor wafer, substantially free of the adhesive gel material, from a platform.

Although AAPA discloses wafer-grinding in general, AAPA cannot be said to disclose or suggest the recited method of wafer grinding comprising, among other things, applying an adhesive gel material including particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to a first side of the semiconductor wafer.

Farnworth does not remedy AAPA's deficiency. Rather, *Farnworth* discloses the use an adhesive layer for holding dice after cutting into separate pieces. However, *Farnworth* cannot be said to disclose or suggest an adhesive having particles capable

of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to a first side of the semiconductor wafer. Instead, *Farnworth* discloses an adhesive used in conjunction with cylindrical rods, the cylindrical rods sitting underneath the adhesive to support the adhesive upon application of a vacuum suction. Thus, *Farnworth* fails to disclose or suggest an adhesive gel having particles, the particles capable of allowing the adhesive gel material to release the semiconductor wafer and preventing substantial collapse of the adhesive gel material if a vacuum suction is applied to a first side of the semiconductor wafer.

Furthermore, notwithstanding *Farnworth*'s failure to disclose or suggest an adhesive gel having particles, Applicant fails to see how one could even use *Farnworth*'s insert structure for wafer grinding. As shown in Figure 4, *Farnworth*'s insert structure clearly would provide inadequate and undesirable support as the adhesive stretched across and floating above the insert 48A, attached only at the edges. Using *Farnworth*'s structure for wafer grinding would lead to, among other undesirable effects, uneven grinding as the edges would have a more resistant support and the center having a less resistant and un-uniform support. Thus, one skilled in the art simply would not be motivated to use the teachings of *Farnworth* for wafer grinding.

Accordingly, for at least the foregoing reasons, independent claims 1 and 16 are patentable over AAPA and *Farnworth*, whether alone or in combination.

Claims 5-6, 8-15, 17-22, and 24-28 depend on either independent claim 1 and 16, incorporating their recitations respectively. Thus, for at least the same reasons, claims 5-6, 8-15, 17-22, and 24-28 also are patentable over AAPA and *Farnworth*, whether alone or in combination.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that claims 18-27 are in condition of allowance. Thus, entry of the offered amendments and early issuance of Notice of Allowance is respectfully requested.

The Commissioner is hereby authorized to charge shortages or credit overpayments to Deposit Account No. 500393.

Respectfully submitted,
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